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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,642	02/03/2004	Peter C. McNulty	923.0003USU	1613

7590 03/20/2006

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EXAMINER

LUU, THANH X

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/770,642

Applicant(s)

MCNULTY, PETER C.

Examiner

Thanh X. Luu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to amendments and remarks filed January 23, 2006. Claims 1-45 are currently pending.

Information Disclosure Statement

1. The information disclosure statement filed March 21, 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

The translation of the German document is missing.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 4-9, 11, 13, 14, 16-23 and 25-30 are rejected under 35

U.S.C. 102(b) as being anticipated by Wilder et al. (U.S. Patent 5,262,871).

Regarding claims 1, 2, 4-9, 11, 13, 14, 16-23 and 25-30, Wilder et al. disclose (see Fig. 1) a circuit comprising: a decoder (12, 14) for receiving an address within an address space of a processor (18) and for accessing a pixel in an active pixel sensor (10) based on the address, wherein the decoder maps the active pixel sensor array to the address space. Wilder et al. also disclose (see Fig. 1) the decoder converts the address into a row and column signal as claimed; and a module (see Fig. 15; amplifiers G) to correct for a gain of the pixel. Furthermore, the sensor array senses an image and is capable of tracking a target as claimed. That is, the intended use of the interface adds no structural limitation to the claim. Wilder et al. also disclose (see Figs.) the pixel circuit is one of a plurality of pixel circuits and the interface provides a signal to simultaneously extract charges as claimed and the pixel circuits form a row; and summing the charges (see Fig. 14).

5. Claims 22 and 26-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Canini et al. (U.S. Patent 6,512,218).

Regarding claims 22 and 26-29, Canini et al. disclose (see Fig. 6) an interface comprising: a module (10, 30) that enables a processor (3) to access a pixel circuit in an active pixel sensor array (5) by direct memory access (DMAC 30). Canini et al. also disclose the pixel circuit is one of a plurality of pixel circuits and the interface provides a signal to simultaneously extract charges as claimed and the pixel circuits form a row. Furthermore, the sensor array senses an image and is capable of tracking a target as

claimed. That is, the intended use of the interface adds no structural limitation to the claim.

6. Claims 22 and 25-29 are rejected under 35 U.S.C. 102(e) as being anticipated by McGrath et al. (U.S. Patent Application Publication 2002/0074481).

Regarding claims 22 and 25-29, McGrath et al. disclose (see Fig. 5) an interface comprising: a module (171, 173) that enables a processor (150) to access a pixel circuit in an active pixel sensor array (117) by direct memory access (DMA 173). McGrath et al. also disclose the pixel circuit is one of a plurality of pixel circuits and the interface provides a signal to simultaneously extract charges as claimed and the pixel circuits form a row. Furthermore, the sensor array senses an image and is capable of tracking a target as claimed. That is, the intended use of the interface adds no structural limitation to the claim. McGrath et al. also disclose (see Fig. 2) a module for correcting for offset or gain (60).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Canini et al.

Regarding claim 24, Canini et al. disclose the claimed invention as set forth above. Canini et al. do not specifically disclose a module for receiving a start and end

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address as claimed. However, Canini et al. do teach (see col. 7, lines 35-40) obtaining windows or a rectangular portion of the image. Windowing inherently would include generating and receiving start and end addresses of the window for readout. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made implement windowing and have a module as claimed in the apparatus of Canini et al. to improve throughput or reduce processing for the entire frame.

Regarding claim 25, Canini et al. disclose the claimed invention as set forth above. Canini et al. do not specifically disclose a module for correcting for a gain of the pixel circuit. However, Canini et al. do teach (see Fig. 8) providing automatic gain control to improve imaging. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to correct for gain as claimed in the apparatus of Canini et al. to improve imaging as taught.

9. Claims 3, 12, 15, 32-39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. in view of Canini et al.

Regarding claims 12, 32-34, 36-39 and 42, Wilder et al. disclose the claimed invention as set forth above. Wilder et al. do not specifically disclose an A/D converter. Canini et al. teach (see Figs.) an A/D converter for representing a charge read from a pixel as a digital value. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such an A/D converter in the apparatus of Wilder et al. in view of Canini et al. for faster and improved digital processing.

Regarding claims 3, 15 and 35, Wilder et al. disclose the claimed invention as set forth above. Wilder et al. do not specifically disclose a module for receiving a start and end address as claimed. However, Canini et al. do teach (see col. 7, lines 35-40) obtaining windows or a rectangular portion of the image. Windowing inherently would include generating and receiving start and end addresses of the window for readout. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made implement windowing and have a module as claimed in the apparatus of Wilder et al. in view of Canini et al. to improve throughput or reduce processing for the entire frame.

10. Claims 10 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. in view of Rathi (U.S. Patent 5,296,852).

Regarding claims 10 and 31, Wilder et al. disclose the claimed invention as set forth above. Wilder et al. do not specifically disclose comparing the sum to determine whether a target image is represented as claimed. Rathi teaches (see abstract and Fig. 5) summing pixel values and comparing to a threshold value to determine whether a target image is represented. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such a comparison in the apparatus of Wilder et al. in view of Rathi as desired for image recognition.

11. Claims 41 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. in view of Canini et al. and Metcalfe et al. (U.S. Patent 6,825,936).

Regarding claims 41, 43 and 44, Wilder et al. disclose the claimed invention as set forth above. Wilder et al. do not specifically disclose sub-frames and different

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integration times as claimed. Metcalfe et al. teach (see Fig. 5 and col. 8, lines 35-40) sub-frames of pixels having different integration times. Furthermore, choosing to overlap frames requires only routine skill in the art. Thus, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide such a configuration in the apparatus of Wilder et al. in view of Canini et al. and Metcalfe et al. as desired for more dynamic imaging.

Response to Arguments

12. Applicant's arguments filed January 23, 2006 have been fully considered but they are not persuasive.

With respect to Wilder et al., Applicant asserts that the prior art does not disclose the decoder receiving an address within an address space of the processor. Examiner disagrees. As understood, since the address originates from the processor and the processor can access the pixel array with that address, the address is within an address space of the processor.

With respect to Canini et al., Applicant asserts that since the image data is transferred to memory, the prior art does not disclose the processor accessing a pixel circuit in an active pixel sensor array by direct memory access. Examiner disagrees. Examiner has pointed to element 3 of Fig. 6 in Canini et al. as the processor element. As such, the memory is within the processor and the processor accesses the active pixel sensor array by DMA.

With respect to McGrath et al., Applicant asserts that since the image data is transferred to memory, the prior art does not disclose the processor accessing a pixel

circuit in an active pixel sensor array by direct memory access. Examiner disagrees. The claim language does not preclude transferring image data to memory. The claim simply states that the DMA module enables the processor to access the active pixel array. As understood, once the image data is transferred to memory, the processor then has access to that data. Therefore, since the DMA module enables the processor to have access to that image data, the claim limitations are met.

Thus, as set forth above, this rejection is proper.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is 571-272-2441. The examiner can normally be reached on M-F 6:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Thanh X Luu
Primary Examiner
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